

Registered Nurse, Ms C
A District Health Board

A Report by the
Health and Disability Commissioner

(Case 10HDC01201)

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Executive summary

1. Mr A, aged 69 years, was admitted to hospital on a Saturday in late 2010 with severe chest pain. On admission, he was diagnosed with myocardial infarction.¹ He was also found to be severely anaemic. Additional tests revealed that Mr A also had previously undiagnosed thrombocytopenia² and acute myeloid leukaemia. Mr A was transferred to the coronary care unit (CCU).
2. In CCU, Mr A became acutely delirious, refused care and demanded release. Efforts were made to calm Mr A, with the assistance of his partner, Mr B. Mr A was assessed by the intensive care unit (ICU) team, and his prognosis was noted to be poor. It was decided that Mr A was not a candidate for intensive care/high dependency care, and he was categorised as “not for resuscitation”.
3. On Sunday evening, Mr A was transferred to a side room in the medical ward, which was co-located to CCU, for symptom management. At 3pm on Monday, registered nurse (RN) Ms C took over the care of Mr A. RN Ms C was the duty co-ordinator on the ward for the shift, which meant that as well as having responsibility for assigning patients and tasks to the other three RNs, she had six patients to manage.
4. Between 5.07pm and 5.13pm on Monday, RN Ms C attached Mr A’s medication administration sheet to the file of another patient. She then checked out medication for Mr A using the Pyxis MedStation medication administration system (Pyxis).³ RN Ms C checked out lorazepam 1mg, paracetamol, tranexamic acid and salbutamol nebulae for Mr A, which he had been prescribed.
5. As RN Ms C paged through the medication sheets, she read sotalol 80mg, simvastatin 40mg and co-trimoxazole 480mg, but could not find these drugs listed on Mr A’s Pyxis profile, so overrode the system and removed these drugs from the Pyxis drawers. These drugs had been prescribed for the other patient. RN Ms C did not check each page to ensure that they all related to Mr A. RN Ms C gave Mr A the medication shortly after withdrawing it from Pyxis. She recorded that Mr A’s blood pressure and pulse were difficult to assess. At 5.26pm when RN Ms C checked out another patient’s medications, she found that she had inadvertently clipped Mr A’s medication sheets into this patient’s file, and realised that she had given Mr A medication intended for another patient.
6. RN Ms C did not report the error to the duty manager, or ask for Mr A to be assessed by a doctor. She realised that two of the medications given in error, sotalol and simvastatin, were cardiac drugs. She confirmed this by checking a pharmacy reference book. As Mr A was a cardiac patient, RN Ms C was reassured and decided that he was not at risk of harm.

¹ Destruction of heart tissue resulting from obstruction of the blood supply to the heart — commonly

² Low blood platelet count and an increased risk of bleeding.

³ Pyxis MedStation is an automated medication dispensing system, which is connected to the hospital patient management system and the pharmacy dispensing system.

7. The records show that not long after Mr A had been given these medications, he became breathless while at the toilet and was unable to walk back to his room. The health care assistant called for assistance, and RN Ms C helped her to return Mr A to his room.
8. At 6pm, Mr A requested additional sedation. RN Ms C removed the sedation prescribed for Mr A, midazolam 2.5mg and OxyNorm 5mg, from the Pyxis. She gave Mr A the midazolam by subcutaneous injection and the OxyNorm orally.
9. At about 7pm, Mr A became short of breath and cyanotic. Mr B called RN Ms C, who found Mr A to be unresponsive. The medical team were called and Mr A was pronounced dead.
10. On Tuesday, RN Ms C phoned the clinical nurse educator for the unit and asked questions about heart block and the effect of certain drugs on this condition. When asked whether her questions related to Mr A's death, she responded, "Yes it is," but did not discuss it further. On Wednesday, RN Ms C called into the nurse educator's office and told her that she had made a medication error, which she thought may have contributed to Mr A's death.
11. The nurse educator reported RN Ms C's disclosure to the Director of Nursing, who advised the Chief Medical Officer (CMO). The CMO contacted Mr B to advise him of the incident, and inform him that the Coroner and Police had been advised, and that Mr A's body would be uplifted for a post mortem.

Decision summary

RN Ms C

12. By administering incorrect medication and failing to report her error, RN Ms C failed to act appropriately to ensure that Mr A was provided with a service with reasonable care and skill, and breached Right 4(1)⁴ of the Code of Health and Disability Services Consumers' Rights (the Code).
13. RN Ms C will be referred to the Director of Proceedings in accordance with section 45(2)(f) of the Health and Disability Commissioner Act 1994.
14. RN Ms C has apologised for her part in this tragedy. She advised HDC that she is no longer working as an RN and does not intend to return to nursing practice.

The DHB

15. The DHB had systems and policies in place to provide training and guidance to staff on medication administration and incident reporting. The finding is that the breaches in this case were caused by individual error, and that the DHB did not breach the Code in relation to Mr A's care.

⁴ Right 4(1) of the Code states: "Every consumer has the right to have services provided with reasonable care and skill."

Investigation process

16. On 22 October 2010, the Commissioner received a complaint from the New Zealand Nursing Council about the services RN Ms C provided to Mr A at a public hospital. Mr A's partner, Mr B, advised HDC on 25 February 2011 that he supported the complaint. The following issues were identified for investigation:

- *The appropriateness of the care registered nurse Ms C provided to Mr A on the day he died in 2010.*
- *The appropriateness of the care the district health board provided to Mr A on the three days leading to his death in 2010.*

17. An investigation was commenced on 2 December 2010.

18. The parties directly involved in the investigation were:

Mr A	Consumer
Mr B	Complainant, Mr A's partner
Ms C	Provider/registered nurse
A district health board	Provider

19. Information was reviewed from the above parties and the following parties:

Mrs D	Friend of the complainant
Ms E	Complainant's sister
Ms F	Registered nurse
Ms G	Registered nurse
Mr H	Registered nurse
Ms I	Health care assistant
Mr J	Pharmacy manager
Coroner	

Also mentioned in this report:

Ms K	Clinical Nurse Educator
Mrs X	A patient

20. Independent expert nursing advice was obtained from registered nurse Claire O'Sullivan and is attached as **Appendix A**.

Information gathered during investigation

21. At about 4am on Saturday, Mr A woke with severe chest pain and asked his partner, Mr B, to call for an ambulance.

Admission to hospital

22. Mr A was admitted acutely to hospital by ambulance, arriving at 5.02am on Saturday. On admission, an ECG (electrocardiogram) was performed and Mr A was found to have pronounced inferolateral ST depression⁵ and significantly raised cardiac enzymes. He was diagnosed with a Non-ST Segment Elevation Myocardial Infarction (NSTEMI).⁶ Mr A was also found to be severely anaemic, and further investigations revealed that he had previously undiagnosed acute myeloid leukaemia.
23. Mr A was treated in the Emergency Department and transferred to the Coronary Care Unit (CCU) for ongoing monitoring and treatment of his myocardial infarction and anaemia. Shortly after transfer to the CCU, Mr A developed symptoms of confusion, which developed into acute delirium. Overnight, he refused routine treatment and monitoring for his myocardial infarction, and demanded to be discharged. His management posed a problem to the CCU staff. Security staff were called in and asked to assist staff to de-escalate the situation by their presence, but not to restrain Mr A.
24. On Sunday morning, Mr A was seen by the haematology team, who advised that the investigation and treatment of his anaemia was ill-advised until his cardiac condition was stabilised.
25. Throughout that day, the nursing and medical staff attempted to keep Mr A calm and provide the necessary cares. Mr A was assessed frequently by the on-call cardiology, medical and haematology teams, and the psychiatric liaison for his delirium.
26. Mr A was assessed by the ICU with a view to his transfer to ICU or HDU (High Dependency Unit). It was decided that because treatment of Mr A's NSTEMI was limited because of his acute leukaemia and delirium, his prognosis was poor and his survival was "measured in weeks to months". Therefore he was not a candidate for ICU or HDU. The plan of care decided upon was symptom management to resolve the delirium and stabilise his blood picture. Mr A was categorised as being "not for resuscitation".
27. At 6.30pm on Sunday, the CCU registrar met with Mr B to explain the severity of Mr A's situation.

Transfer to Ward

28. At 9pm on Sunday, Mr A was transferred to a side room in a medical ward (the ward), where his delirium and agitation could be managed by a low stimulus environment. He also needed to be nursed in reverse isolation⁷ because of his neutropenia.⁸ Mr A

⁵ ST segment depression can be caused by ischaemia, digitalis, rapid heart rate, and temperature or electrolyte abnormalities.

⁶ One of the three types of acute coronary syndrome — a medical emergency. Mr A later developed a Type 2 heart block, then a complete heart block.

⁷ An isolation procedure designed to protect a patient from infectious organisms that might be carried by staff, other patients or visitors. The procedure includes hand washing and wearing a mask, gloves and/or a gown when persons enter the patient's room.

⁸ Low white cell count, which increases the potential for contracting infection.

was prescribed intravenous (IV) midazolam⁹ for control of his agitation, and zopiclone for sedation. He was also prescribed morphine elixir and a salbutamol nebuliser for respiratory distress.

Monday

29. On Monday, Mr A continued to be reviewed by the cardiology, medical and haematology teams and psychiatric liaison. Mr A was assigned a “special”¹⁰ until 11am, and from that time he was closely monitored by ward staff.
30. As the symptom management continued, Mr A’s delirium was resolving, but he remained confused and delirious. The morning shift nurse caring for Mr A recorded that at 2.20pm he disconnected his red blood cell infusion and walked to the toilet. It was explained to Mr A that he was to remain in bed and use a urinal when he wanted to pass urine. The staff noted that Mr A appeared unable to comprehend instructions.
31. RN Ms C advised that on Monday there were four registered nurses and a health care assistant (HCA) working the 3pm to 11pm shift on the ward. RN Ms C said that she was the duty co-ordinator and, as well as having a case load of six patients, which included Mr A, she was in charge of the nursing team, responsible for allocating patients and duties, and overseeing the ward. RN Ms C said that one of the RNs was a new graduate, who was assigned three angiogram patients who required a high level of care.
32. The DHB advised that the workload issue has been considered, and that RN Ms C’s workload was not exceptional. The ward had 23 beds and there were four registered nurses and a health care assistant on duty. The new graduate was not “brand new” and was carrying a full load. It was a busy shift but not exceptionally so.
33. None of the other three registered nurses on duty that afternoon had any contact with Mr A.
34. At handover, RN Ms C was advised that a request had been made for another person to “special” Mr A. RN Ms C assigned the HCA, Ms I, to stay with Mr A until the “special” arrived. However, Mr A’s “special” did not arrive. RN Ms C stated that Ms I was “tiny and unable to handle [Mr A]”.
35. RN Ms C stated that she “pester[ed] the roster office” for a special. She said, “As often happened no one was available”. RN Ms C said that she did not think of approaching the duty manager to ask for additional staff but, even if she had, she would have been reluctant to contact the duty manager, as her previous experiences when she asked for additional staff were that the duty manager shrugged her shoulders, and RN Ms C was expected to “carry on regardless”.
36. RN Ms C was frequently called back into Mr A’s room, as Ms I was having difficulty managing him. Mr A was moving between his bed and a chair, compromising his IV line. He wanted the door left open, which was contrary to isolation protocol, was

⁹ A short-acting drug in the benzodiazepine class, used for sedation.

¹⁰ A nurse or health care assistant assigned to care solely for a seriously ill and/or agitated patient.

removing his clothing, and became angry when instructed to use the urinal bottle. RN Ms C recalls that she and Ms I spent most of their time that duty in his room. She said that this was very stressful as she had her other patients to care for.

37. Ms C stated:

“He also refused to wear an oxygen mask even though his respiratory rate was 24–28 and he was wheezy. Due to my concern with his breathing and his refusal to wear an oxygen mask, I manually overrode the pyxis once to give him a nebuliser to assist with his breathing. While this medication had been prescribed it had not yet been added to his profile medication on the pyxis and which was why it had to be accessed via the override function.”

38. RN Ms C stated that Mr A’s oxygen saturation levels were good but were difficult to obtain because of his restlessness and his cold sweaty hands, despite Mr A complaining of feeling hot and trying to remove his clothing. The observation chart shows that Mr A’s respiration rate ranged between 22 and 28 respirations per minute.

39. RN Ms C advised HDC that “[Mr A’s] vital recordings were stable throughout the whole day although his blood pressure was difficult to hear through the stethoscope and the propac machine had been unable to obtain it at all”. RN Ms C stated that his heart rate remained stable at about 85 beats per minute (bpm). The records do not support this account. Mr A’s blood pressure ranged between 88/50mmHg and 118/70mmHg (normal adult blood pressure is 120/70mmHg), but at 5pm his blood pressure was recorded as “100/” (indicating that the diastolic pressure¹¹ could not be heard). At 4.30pm, Mr A’s pulse was recorded at 42bpm. There was no record of Mr A’s pulse rate being taken at 5pm. In addition, the vital sign observations record sheet shows that Mr A’s pulse rate during that day was low, at less than 60 bpm.

40. In response to the provisional opinion, RN Ms C said that she recalls that Mr A was described at handover as “palliative”, and that throughout the duty this was at the back of her mind. RN Ms C stated: “In retrospect I realise that this may have been too much in my mind and was in error as [Mr A] was ‘not for resuscitation’ and not palliative.” She said that palliative patients are exempt from having their observations done routinely, as taking recordings can put the patient under stress. RN Ms C also noted that the recordings of palliative patients can be difficult to obtain because of their compromised health and, accordingly, as soon as the red cell infusion had finished, she reduced the frequency of Mr A’s observations.

41. RN Ms C recalls that the cardiac doctors were still on the ward at this time, and they had taken Mr A’s chart to prescribe medication to control his agitation. She asked the doctors if Mr A could have a urinary catheter, but was told that he should first have a bladder scan to ascertain the amount of urine in his bladder. RN Ms C did not discuss Mr A’s other symptoms such as his being breathless and wheezy and having cold sweaty hands, or ask for a medical review of him.

¹¹ Blood pressure in the artery when the heart is resting between beats. The systolic (upper recording) pressure is the measurement of pressure in the artery when the heart is contracting.

42. RN Ms C advised HDC that she decided to withhold Mr A's sedation until after the bladder scan, as there was a possibility that urinary retention was causing his agitation. However, when she performed the bladder scan a little later, there was very little urine in Mr A's bladder.

Medication error

43. Just before the evening meal was served, RN Ms C left Mr A to administer insulin to another the ward patient, Mrs X, prior to Mrs X eating her meal. RN Ms C said that she took Mrs X's chart to the Pyxis room, but before she could prepare the insulin, RN Ms C was called to see Mr A. RN Ms C stated:

"I put [Mrs X's] file on the fridge in the pyxis room, the fridge is right beside the pyxis and we use it like a trolley as there is not much space in there. I went to see [Mr A] and decided to give him sedation to calm him down and so that hopefully he wouldn't continue to require full attention.

I returned to the pyxis room and [Mr A's] chart was sitting on the fridge in the pyxis room so I started with him. I went to get out his medication, and I did not realise that his chart was pinned to [Mrs X's] file until later. ... The file was open at the drug chart with his name, hospital number etc on it so I proceeded to get the medication.

I overrode the pyxis to get out the oxazepam or lorazepam (I cannot remember which drug it was) and I also decided to give his dinner medications at the same time. I touched the pyxis to go back to [Mr A's] profile medications as it is easier to administer from there. I flicked over the chart file to get out the next sheet of meds and had to override the pyxis again as the medications were not present. I saw that [Mr A] had been charted metformin but chose to withhold this as he had refused to eat any dinner and I then continued with the remainder of the chart. I took the medication to [Mr A] and watched as he swallowed them immediately."

44. In response to the provisional opinion, RN Ms C stated that only one of the overrides related to the wrong medications. The other two were oxazepam and the nebuliser, which had not been updated on the chart.
45. Mr A had not been prescribed metformin, which is an oral diabetic drug. This drug was prescribed for Mrs X. RN Ms C did not discuss with a prescriber her intention to withhold this medication.
46. The Pyxis Transaction Summary shows RN Ms C removing the following medications for Mr A from the Pyxis MedStation at this time.

5.04pm, lorazepam 1mg
 5.05pm, paracetamol 500mg, 2 tablets
 5.06pm, tranexamic acid 500mg
 5.07pm, simvastatin 40mg, 2 tablets¹²
 5.07pm, co-trimoxazole 480mg¹³

¹² Controls elevated cholesterol.

5.07pm, sotalol 80mg¹⁴
5.13pm, salbutamol nebulizer 2.5mg¹⁵

47. RN Ms C recorded on the medication record that she gave Mr A oral lorazepam¹⁶ 10mg, paracetamol 1gm and tranexamic acid¹⁷ 500mg at 5pm. RN Ms C did not record in Mr A's medication record that she had administered simvastatin, co-trimoxazole and sotalol to Mr A.
48. The Pyxis Transaction Summary for Mrs X shows that RN Ms C removed the following medications for administration to Mrs X:
- 5.26pm, metaformin 500mg, two tablets
5.26pm simvastatin 40mg, two tablets
5.27pm, co-trimoxazole 480mg, one tablet
5.27pm, sotalol 80mg, one tablet
6.43pm, amiodarone 200mg, two tablets
49. The "Too Close" Pyxis warning function¹⁸ did not activate in this case, as the simvastatin, co-trimoxazole and sotalol were drawn down for two different patients, not twice for the same patient.
50. The Pyxis protocol provides: "The complete medication chart must be faxed to the pharmacy whenever a user needs to use the override function to remove a medicine." However, at times when the Pharmacy is not available (such as after hours as in this case), staff are able to override the Pyxis system after carrying out the appropriate checks to ensure that the correct patient receives the correct medication at the correct time. However, RN Ms C failed to check that each page she referred to related to Mr A.
51. In response to the provisional opinion, RN Ms C stated:

"If I had removed all my patients' dinner medications at the same time, as is the usual practice, I would have realised the mistake before administering any of the medications. However, I was trying to calm [Mr A] down with the Oxazepam and so did his medications separately which contributed to my making the error. ...

I did check [Mr A's] bracelet when giving his medication but was not able to tick off the meds he took as the chart stays outside the room for a patient in reverse isolation. Charts harbour lots of germs. Also [Mr A] grabbed the cup from me and took the pills all at once which took me by surprise."

¹³ Sulphonamide antibacterial.

¹⁴ Sotalol is classed as a beta blocker and a Class III anti-arrhythmic agent. Different beta blockers act in different ways and do not necessarily have the same effect. However, all beta blockers have a negative effect on the heart rate and conduction. MIMS states that the contraindications to sotalol are bradycardia (a heart rate of 40 to 50 beats per minute) and second and third degree AV block.

¹⁵ Controls bronchospasm, used to treat mild to moderate attacks of dyspnoea.

¹⁶ Anti-anxiety treatment.

¹⁷ Assists blood to clot normally.

¹⁸ See paragraphs 103–104.

52. RN Ms C recalls that, at this time, Mr A's red blood cell infusion had finished, so she put up a saline flush. She said that Mr A's partner, Mr B, arrived and asked her to assist him to set up Mr A's meal, which she did. RN Ms C said that she was grateful for Mr B's presence, as Mr A was more co-operative in his company.
53. Mr B advised HDC that he arrived in Mr A's room in the ward at about 5.30pm on Monday. He recalls that Mr A had no intravenous lines in situ, which Mr B took to be a good sign. Mr B said he had brought in a meal for Mr A and asked RN Ms C if he could have some cutlery for their meal. However, Mr B said that RN Ms C told him that the ward was unable to provide cutlery. Mr B said that he felt RN Ms C had a negative attitude towards him. She did not respond to his simple questions and cut off his sentences. Mr B said that RN Ms C was "in and out of the room" and, although another nurse came to help her, no staff stayed in the room. In response to the provisional opinion, RN Ms C stated that they would "often use the patients' visitors as a 'watch' and [they] would have stayed in the room with [Mr A] longer prior to [Mr B's] arrival".
54. RN Ms C stated that she was not aware that Mr B was Mr A's partner. She said that she does not consider that her attitude towards Mr B was negative, and is sorry if that was his perception. RN Ms C acknowledged that she can be short at times, particularly when she is under stress, as she was on this occasion. RN Ms C stated that the ward does not stock cutlery — it is returned with the meal trays after each meal — so she was not able to provide Mr B with the cutlery he requested.
55. Mr B stated that Mr A was restless after his meal. Mr A got off the bed to sit in a chair, and then returned to the bed. Mr A told Mr B that he wanted to "pee", and walked unaided to the toilet, which was about three metres along the corridor from his room. Mr B said that Mr A did not require assistance to go to and from the toilet. Mr A was unable to pass urine. Mr B recalls that RN Ms C appeared surprised when she saw Mr A walking back from the toilet.

Discovery of medication error

56. RN Ms C stated that when she was arranging to give medications to her other patients, she realised that two patients' files were missing. She recalls that RN Mr H was in the room, and she asked him about the missing files. RN Ms C said that RN Mr H took Mrs X's file off the top of the fridge and gave it to her. RN Ms C stated that when she opened Mrs X's file she found Mr A's file inside.
57. RN Ms C stated:
- "It was while checking through the file that I realised the mistake that I had made in giving [Mr A] the incorrect medication. On checking which medications had been wrongly given I realised that they were mainly cardiac medications ([simvastatin], sotalol) and co-trimoxazole, as the diabetic drug metformin had been withheld."
58. RN Ms C advised that although she was concerned that the wrong medication had been given, as it was mainly cardiac medication and Mr A was a cardiac patient, she

was “slightly reassured”. RN Ms C said that she had a “quick look in the MIMS”,¹⁹ and verified that the medication she had given Mr A was cardiac medication. She said that as “nothing leapt out at me as being extreme danger”, she decided to give her other patients their medications, as she thought Mr A would be “okay until this was completed”.

59. RN Ms C stated that she told RN Mr H she had mistakenly given Mr A Mrs X’s medication. RN Ms C said that RN Mr H “laughed which made me feel humiliated. I did not go immediately to call the doctor for the reasons above and due to my feeling stupid and embarrassed for making the mistake.” In contrast, RN Mr H told HDC that he did not have any conversation with RN Ms C about Mr A.
60. RN Ms C stated that she then became busy checking medications and administering them to her other patients, including Mrs X, as well as dealing with the concerns of the families of two other patients. Ms C stated that she “kept passing [Mr A’s] room to check that he was okay”.

Sedation

61. The Non Regular (PRN) Medications record shows that on Sunday, Mr A was prescribed IV midazolam 1–2mg four hourly as required, and midazolam 2.5mg, subcutaneously, as required. On Monday, Mr A was prescribed OxyNorm²⁰ 2.5mg to 5mg two hourly as required.
62. At about 6pm, RN Ms C checked on Mr A and asked him how he was feeling. She recalls that he replied that he was feeling better but would like some more medication to calm him down. RN Ms C agreed to give Mr A the medication he requested, but told him that it would be a different medication requiring the insertion of a needle, “to which he agreed”. RN Ms C advised HDC:

“This medication was also an over-ride of the pyxis. Both the sedative I had given earlier and the subcutaneous sedative were charted for [Mr A] however both had to be over-ridden on the pyxis machine as they were not on his profile.”

63. The Pyxis Transaction Summary for Mr A shows that RN Ms C removed an oxycodone (OxyNorm) 5mg capsule from Pyxis at 5.56pm and a midazolam ampule (15mg/3ml) at 6.17pm. RN Ms C signed that she gave Mr A OxyNorm 5mg at 6pm and midazolam 2.5mg (0.5ml) at 6.30pm on Monday.

Breathless attack

64. RN Ms C advised HDC that “sometime” after giving Mr A his medication, she answered an urgent “toilet bell” from one of the toilets and found Ms I there with Mr A. Mr A was very breathless and unable to walk back to his room. RN Ms C stated that as Mr A was a very large man it was very difficult to assist him without his co-operation, but she and Ms I managed to get him back to his room and into a lazy-boy chair. RN Ms C gave Mr A oxygen.

¹⁹ Medical Information Management System.

²⁰ An opioid pain relief related to morphine.

65. Ms I advised HDC that, as a health care assistant, she is not assigned to any particular ward and works wherever there is a need for her assistance. She has no recollection of Mr A or these events.

Summary of care

66. At 7pm, RN Ms C recorded the care provided to Mr A that afternoon. She noted:
- “2nd unit of [red blood cells] commenced. Was very agitated, restless & fidgety lying down and sitting up and [not] following instructions unless wants to. Kept on watch by myself or ward HCA. Insisted on going toilet — unable to pass urine except for dribble. Bladder checked with scanner — 77mls only post toilet trip. Pt seemed to settle for a while with that fact. Again went to toilet with HCA — became very SOB & cyanotic, Given O₂ & returned to bed. Have insisted too unwell to walk to toilet. Pt has now agreed. Neb charted and given. Given pain relief as charted plus lorazepam charted by cardiology HS. Still fidgety. Obs as charted. Took all clothes off as insisted it was hot. Nil temperature. Fingers became cold so unable to get SATS.²¹ Given more analgesia & inserted SCN²² in [right] breast. Midazolam given & [patient] now settling. Bloods completed. Not eating & taking small amounts of fluid as well. Settled a lot more now family present.”

Sudden deterioration

67. RN Ms C advised HDC that she “stopped again” to check on Mr A at 7.10pm and found him lying across the bed, with no oxygen mask on and looking very cyanotic. Mr B was sitting watching Mr A and he asked her what she had given Mr A. RN Ms C said that she noted that Mr A’s breathing had stopped and when she checked for a heartbeat she could not locate one. She told Mr B that she was sorry but it appeared that Mr A had died. She recalls that she asked a doctor, who was at the nurses’ station, to verify Mr A’s death.
68. RN Ms C recorded the following at 7.30pm:
- “Went back to visit patient at 1910 and found him unresponsive & cyanotic. Found no pulse & no apical heartbeat. Called OCHS & confirmed. Partner still present.”
69. Mr B’s recollection of these events differs from that of RN Ms C. Mr B advised HDC that at 6.40pm, he noticed that Mr A was not breathing. He went out into the corridor and saw RN Ms C at the nurses’ station, which was about three metres along the corridor from Mr A’s room, and called for assistance. Mr B recalls that RN Ms C checked Mr A for a pulse and when she found none told him that Mr A had died and that a doctor would have to be called to certify death.
70. Mr B recalls that RN Ms C told him that she would need to contact Mr A’s next of kin. Mr B told RN Ms C that he was Mr A’s partner and his next of kin. Mr B said that he was in shock, as he had planned to spend the night in Mr A’s room and take

²¹ Blood oxygen saturation levels.

²² Subcutaneous needle.

him home the next day. He said that RN Ms C did not offer her condolences and he felt she was unhelpful, and did not offer him any support such as the whānau room.

71. RN Ms C stated that as ward co-ordinator it was her role to discuss with the family “the timeframe for the removal of the person’s body and how long they wanted/expected to stay”. She said that she had intended to discuss these matters with Mr B, but he was on the telephone to his family, and then the CCU nurse spoke to him before she had the opportunity to discuss the removal of Mr A’s body. RN Ms C stated: “My discussions around this were not intended to be callous or unsympathetic and I apologise if the conversation was taken this way.”
72. Mr B stated that RN Ms C and another nurse “straightened” Mr A. One of the nurses from CCU arrived in the ward. She said she had heard that Mr A had died and offered Mr B her condolences. Mr B asked this nurse about what he needed to do, and whether he needed to contact an undertaker.
73. At 7.30pm, the on-call house surgeon recorded Mr A’s death, noting the time of death as 7.10pm.
74. Mr B contacted his sister, Ms E, and friend, Mrs D, to advise them that Mr A had died. Ms E and Mrs D arrived at the hospital and spent time with Mr B and Mr A. Ms E and Mrs D recall that not long after they arrived, RN Ms C entered the room to enquire how long they intended to remain.
75. RN Ms C recorded that Mr B, Ms E and Mrs D left the ward at 10pm. However, Ms E and Mrs D recall leaving the ward at between 11pm and 11.30pm.
76. The Medical Certificate of Cause of Death, completed on Tuesday, noted the cause of Mr A’s death as complete heart block due to myocardial infarction and ischaemic heart disease.

Follow-up

77. RN Ms C stated that during the night she woke with the realisation that the wrongly administered medication may have contributed to Mr A’s death. She said that she was in a panic that she had been “so stupid as to not report the medication error immediately thus making an even bigger blunder than the original mistake”.
78. RN Ms C said that the next morning (Tuesday), she considered who she should report the error to, as the ward charge nurse was on leave. She left a message on the cardiac nurse educator’s telephone asking her to ring back.
79. The DHB Clinical Nurse Educator, Ms K, provided a written statement to the Police on Thursday. She stated that at about 1pm on Tuesday, a message was left on her office answer machine by a staff nurse from the cardiology unit, Ms C, saying, “Could you please call me back I have a question for you.” RN Ms K said that she picked up the message at about 4pm and called RN Ms C straight away.
80. RN Ms C confirmed that RN Ms K telephoned her back on Tuesday afternoon. RN Ms C advised HDC: “We had a discussion about the normal treatment for the

different types of heart blocks, as with being new to the cardiac ward I did not know.” RN Ms C said that she wanted to go to see RN Ms K in her office, but the conversation ended because RN Ms K had people arrive in her office.

81. In her written statement, RN Ms K recalled that RN Ms C asked her what the difference was between first, second and third degree heart block. RN Ms K stated:

“I explained that it depended on the patient and the circumstances and as to how we treat them. [Ms C’s] next question was about the medication she had administered to [Mr A]. The medication [Mr A] had been prescribed was Lorazepam. [Ms C] asked if Lorazepam could have contributed to complete heart block in any way. I advised her that the answer was No. [Ms C] then asked about if the combination of the drugs Lorazepam, Oxynorm and medazilam [sic] would have had any effect on the complete heart block. I again advised her that the answer was no. I asked [Ms C] if the questions she was asking me had anything to do with the death of the patient [Mr A] the night before? [Ms C] responded, ‘Yes it is’, but did not go into any further detail about it. [Ms C] then changed the subject and we began talking about her Workplace Assessment portfolio instead.”

82. RN Ms C stated that she continued to think about her error all that afternoon and tried to contact RN Ms K again in the early evening, but there was no reply. She said that, “after a very anguished night”, she went to hospital to see RN Ms K and told her what had happened. RN Ms C said: “As I had a funeral to attend that afternoon [RN Ms K] offered to complete the incident report and continue with the reporting process.”

83. RN Ms K stated that RN Ms C arrived at her office at about 10am on Wednesday. RN Ms K said:

“I knew it must be something important as [Ms C] was actually rostered on a day off. [Ms C] appeared very upset. I cannot remember exactly what she said, but she began telling me that she believed she had given another patient’s medication to [Mr A]. ... She told me that she believed she had given [Mr A] the other patient’s medication in place of the medication he was supposed to be getting. The medication [Mr A] was supposed to be getting was a dosage of paracetamol and 500mg of [tranexamic] Acid. The medication [Ms C] believed she accidentally gave [Mr A] was 480mg of Cotrimoxazole and 80mg of Sotalol. Cotrimoxazole is an anti-bacterial drug and Sotalol is a ‘beta-blocker’ medication.

[Ms C] explained to me that she believed she had made the mistake by getting the patients’ charts mixed up. She did not explain how she managed to do this to me. The other patient [whose] chart she believed she had mixed [Mr A’s] with was for a 55 year old female suffering from arrhythmia, which is heart problems. ... [Ms C] had given this medication at 1700hrs on the [Monday night].”

84. RN Ms K said that she reassured RN Ms C about the situation, and told her to go on leave as she had a funeral to go to. RN Ms K said: “I continued on and dealt with the follow-up procedures and advised my managers/head of the health team.” There is no record of an Incident Report being completed by either RN Ms C or RN Ms K.

85. RN Ms K stated:

“I rang [Ms C] ... on Wednesday ... at about 2030hrs. I explained to her that there were follow up procedures in place and that when she returned to work from her planned leave she would unfortunately be under investigation and stood down from her nursing duties until the investigation was over.”

Coronial involvement

86. At 2.15pm on Thursday, the CMO completed a Record of Death form, noting that he had discussed Mr A’s death with two of the DHB’s senior doctors. The CMO noted the cause of death to be “complication of MI or related to sotalol”. He noted that the Police had been notified, and Mr A’s death had been referred to the Coroner.

87. The CMO contacted Mr B on Thursday afternoon to advise him that there had been a medication error and that Mr A’s death had been reported to the Coroner. When Mr B received the call, he thought that someone was playing a trick.²³ He was shocked and disconnected the call. The CMO telephoned back, convinced Mr B of the situation, and stated that the Police would arrive at his home shortly to uplift Mr A as a post mortem was required. Mr B asked the CMO for the name of the nurse involved. The CMO declined to name the nurse. However, Mr B told him that he believed that the nurse was RN Ms C.

Follow-up by DHB

88. Just over a month later, the DHB staff, including the CMO and the Director of Nursing, met with Mr B and his family at his home to discuss the issues.

DHB investigation

89. The DHB initiated an internal investigation into the circumstances of Mr A’s death. The issues of concern identified by the DHB’s investigation into this incident in relation to RN Ms C were:

- Concern about her skill in the delivery of professional nursing practice.
- Her failure to refer the error to the appropriate persons in a timely manner.
- Her actions showing a lack of expected professional knowledge/judgement.

90. The DHB’s conclusion was that the medication error was preventable if the expected processes had been followed, and that it is not clear whether Mr A’s death was preventable given his condition and prognosis.

91. The recommendations arising from the report were:

- Staff practices on the ward were to be reviewed in regard to medication administration and Pyxis procedures.
- Nurses’ understanding of their responsibilities in relation to medication administration safety and their accountability for reporting incidents in a timely manner was to be reinforced.

²³ On Wednesday, a funeral service delivered Mr A’s embalmed body to the home he shared with Mr B.

- Staff practice in talking to patients about poor prognosis and end of life discussions, such as palliative care and whānau input was to be reviewed.
- Updating of care plans, especially when multiple specialties are involved in the patient's care, was to be reinforced.

DHB policies — Medicine Management

92. The DHB has a policy on Medicine Management and Administration. The policy purpose states that safe medication management is a team effort. The policy outlines the systems and procedures in place to ensure safe and competent prescribing, dispensing and administration of medicines. The policy states:

“Understand the patient's diagnosis. Know that the **right medicine is being given for the right reason.**

Assess the patient's condition and whether any side effects are noted.

Advise the patient what medicines are due and what they are.

RIGHT PATIENT — check the ID number on the chart with the wrist band. Ask the patient to state their full name and date of birth to confirm the right person.

Administer the medication. Do not leave at the bedside.

Document that medicine administered.

Monitor and document in clinical notes the effect of the medication/product.”

93. The DHB's policy, Competency in Medicine Management & Administration, requires that:

“[o]nly staff with a health professional training/preparation and whose job description requires them to do so, may be involved in medicine management;

- It is expected that they will have the core knowledge needed i.e. physical assessment, patho-physiological, pharmacology, legislation and accepted professional standards
- Staff will be able to assess risk and know how to seek assistance where required
- Staff will seek clarification and advice if they are concerned or unsure.”

94. The policy sets out the steps to be taken for medicine management and administration competence assessment and certification.

Pyxis MedStation

95. The DHB advised that Pyxis MedStations were introduced to the DHB in 2001 and have been progressively installed throughout most clinical areas at its other hospitals since that time. The system provides immediate access to an extensive range of medications on the ward while preserving the safety and security required when dispensing and administering medications. Each Pyxis machine is connected to the patient information management system (PIMS).

96. Pyxis MedStations are an automated unit system used for the distribution and storage of medicine in clinical areas. They interface with PIMS and the pharmacy dispensing

system. Access is maintained by the Pharmacy Department. All patient medication charts are faxed to the pharmacy, where the medication information for that patient is entered into the patient's profile in the Pyxis system and reviewed by a clinical pharmacist. The entered medications are checked for dosage problems and interactions.

97. When medication is required for a patient, the user (usually a nurse) logs onto the Pyxis touch screen using fingerprint logon technology, and selects the patient and the medication required. A list of medications, which have been checked by a pharmacist, are displayed for that patient on the screen (98% of the medication required on the ward will be stored in the MedStation). The nurse keys in the medication required, and a drawer in the MedStation opens, allowing the removal of the medication. Detailed records of all transactions are stored in the system.
98. The nurse is expected to follow the standard medication management policy to ensure that the right patient receives the right medication in the right dose at the right time by the right method of administration, by checking the patient's chart against the patient's NHI²⁴ number and identification wristband before administration.
99. The DHB employees are provided with a booklet, "Finding Your Way Through The Medication Administration Test". The booklet covers management and administration (which includes information about dispensing from the Pyxis MedStation), opioids — administration for adults only, blood component/product administration, and competence in medicine management and administration.
100. The section of the booklet on medication management and administration notes that "administration involves the removal of ONE dose for immediate use for or by the client/patient. It is not acceptable to prepare medication earlier than the time it is due to be administered." The steps to be taken are listed 1 to 10, and specify that step one is to complete any required monitoring, then the written prescription is to be reviewed carefully: "Is the medicine clearly and correctly prescribed? If not, CHECK with prescriber." Step 5 instructs that the medication is to be carefully checked before administration, and that the nurse should know the special precautions and vital sign monitoring required. The various safety checks are clearly noted.
101. The Pyxis MedStation Medication Management policy describes the procedures for using the Pyxis MedStation system. The policy states: "When removing medicine from the Pyxis, users are required to check and identify the medicine removed against the prescription on the Medicine Chart and the medicine name and strength on the Pyxis MedStation screen."
102. The DHB's Pharmacy Department provides training in the Pxyis MedStation to all new users at all orientation days, in collaboration with the Nursing Development Service. The Pyxis MedStation training programme, devised by the DHB's Pharmacy Operations Manager Mr J, notes that medication errors can occur at any stage in the process of prescribing and delivering a medication. Mr J advised that the DHB is aware that there are a number of staff who do not receive training from the Pharmacy

²⁴ National Health Index.

Department staff, and are most likely trained by another nurse on the ward at their induction. The DHB is in the process of implementing a programme that will ensure that all staff have formal Pyxis training.

103. Mr J stated that the Pyxis system has “Override” and “Too Close” functions. In some situations, medications need to be administered before they are clinically reviewed and profiled, that is, in urgent situations or outside pharmacy opening hours. In these instances, the Override function allows the nurse to remove the medication. However, the Pyxis reference guide training handout states that whenever the Override button is used it is important to fax all the charts to the pharmacy afterwards. This way the medicine will be profiled for the next time it is required. As removing the medicines using Override is likely to increase the risk of selecting an incorrect medication, the DHB is continually looking at ways to reduce the Override rate. From the beginning of 2011, the DHB ran a trial in the ward where the Override function was switched off on the ward’s Pxyis MedStation between 8.30am and 5pm on weekdays. Mr J stated: “This has proved successful in significantly reducing overrides; however, we would need additional [pharmacy] staff to be able to extend this to further inpatient areas.”
104. The Too Close function enables the pharmacy staff to set an interval during which, if a user attempts to remove a medication more than once during the prescribed time, a warning is displayed. The user is still able to remove the medication a second time, but must acknowledge the warning and select a reason for the additional removal, such as “dropped on the floor”. The DHB has been cautious in enabling warnings, as there is evidence in the literature of “alert fatigue”. At the time of this incident, there were Too Close warnings enabled for paracetamol and warfarin, and specific warnings on other high-risk drugs such as morphine, methadone and clozapine.
105. The medication administration test booklet instructs that every time the inpatient medication chart is changed, it must be faxed to the pharmacy, including the STAT (for immediate administration) and PRN (as required) sections. In the pharmacy, all prescriptions are checked by the clinical pharmacist to ensure they are safe to administer. The prescribing sheets are then “profiled” by the pharmacist so that the medications are available for administration from the Pyxis MedStation without the need to use the Override facility. The DHB audits all Pyxis overrides to ensure that the pharmacy has been notified.
106. It is planned that in future, medications will be prescribed electronically straight to the pharmacist for checking. This will speed up the process and reduce the potential times that staff withdrawing medication need to use the Override function.
107. In response to the provisional opinion, the DHB stated:

“A Medication Safety Group (MSG) reporting to the Clinical Governance Board was established in May 2011, and meets monthly. Membership is multidisciplinary, and the purpose of the group is to continuously and systematically evaluate and improve the safety of the systems used in the prescribing, dispensing and administration of medicines, and to provide

leadership in fostering safe medication management within [the] DHB hospitals and community services.

A Medication Safety Strategy, together with a three year Action Plan, was endorsed by the Board in September 2011. An update on progress as measured against the Action Plan is provided as part of the Quality Report to the Hospital Advisory Committee every six weeks. At each meeting the MSG reviews medication errors that are reported by staff in the voluntary reporting system, and this is used to inform strategies for medication safety on an ongoing basis.”

Incident Management

108. The DHB’s Incident Management policy describes an incident as an “Event/circumstance that could have resulted in/did result, in unintended or unnecessary harm to a person (consumers, visitors, employees), in a complaint, loss or damage that is discovered on entry to the service or occurs during service provision, regardless of the outcome severity.” The policy notes that all staff should report any near miss or incident as soon as it occurs, and at least before the end of shift, using the computerised incident management system (RiskPro). Adverse or sentinel events must be reported immediately to the Duty Manager for immediate response. The policy notes that when the event affects the patient and his or her care and/or treatment, then the patient and the family should be informed after consultation with the clinical director or the person in charge.

Actions taken by the DHB

109. As a result of issues identified by the investigation into these events, the DHB took the following actions:
- There was discussion with the ward staff about their processes for checking medications, they were reminded that any error was to be reported as soon as it occurred, and their practice was monitored.
 - Charge Nurse Managers of all clinical areas were reminded by email to discuss with staff at handover, the importance of checking medication safely.
 - A module by the Medication Governance Group was to be included in the Learning Framework content for 2011.
 - All nurse/midwife educators were required to monitor medication practice and update medication management education.
 - The Nursing Grand Round presented medication administration issues with emphasis on accepted processes and accountability.
 - Charge Nurse Managers were to ensure that all staff signed that they read the Grand Round PowerPoint and understood the expectation regarding accepted practice.

Additional information

Coroner

110. The Coronial autopsy report recorded Mr A's cause of death as, "multifocal acute myocardial infarction (Sotalol toxicity not excluded)" and acute myeloid leukaemia. The Regional Forensic Pathologist commented:

"This man clearly has acute myeloid leukaemia which has led to the complications of multifocal acute myocardial infarction. This has undoubtedly led to cardiac and renal failure resulting in his death. Post-mortem toxicology has been limited due to the fact this man was embalmed prior to the post-mortem. ... Analysis of the Sotalol has not been able to provide a level of this drug due to the embalmed state of the deceased.

I have seen medical records, including a copy of the medication chart from the patient who should have received [the] Sotalol. This chart indicates that the administered dose was 80mg orally. It would appear this would have been administered a couple of hours prior to death. Sotalol is a beta blocker and as such can improve cardiac conduction but also can slow the heart through its negative action on the heart rate. It is my understanding that this drug is contraindicated in heart failure and in complete heart block. Given such, this man should not have been administered Sotalol."

Nursing practice

111. The New Zealand Nursing Council's June 1999 Guidelines for Competence-Based Practising Certificates for Registered Nurses states in its Overview:

"Each registered nurse has individual responsibility for maintaining competence in their current area of nursing practice."

In the section, "Ongoing professional development", the guidelines state:

"You are responsible for seeking opportunities to learn and maintain the level of your competence in the interests of patient and client care. You choose the activities to meet *your* needs in the context of *your* practice."

112. The DHB's Director of Nursing & Midwifery advised HDC that prior to 2010, the ward was a general medicine and palliative care ward but the focus of the ward was then shifted to cardiac care. General medicine wards have a mix of patients with non-surgical conditions which include cardiac problems. The Director of Nursing advised that RN Ms C had considerable experience working in the ward. She was a Level 3 senior nurse who was given educational opportunities to up-skill in cardiac medication and cares.
113. The Director of Nursing advised that each nurse is required to undertake 20 hours of professional development per annum,²⁵ relevant to the specialty the RN is working in.

²⁵ The Nursing Council of New Zealand requires that every registered nurse undertake a minimum of 60 hours of professional development in three years.

RN Ms C's "Portfolio/Professional Profile" records that she undertook 48+ learning hours in 2010, which included a cardiac module. The Director of Nursing stated that there is a dedicated nurse educator for most divisions. The nurse educators undertake a learning needs analysis and plan learning opportunities for the nurses in their assigned division, to develop a depth of knowledge for the nursing care of patients admitted for assessment and treatment — in this case general medicine, cardiology and palliative care.

114. The Director of Nursing stated that RN Ms C would have had knowledge about beta blockers as this was included in the Cardiac module, which she attended.

RN Ms C

115. Ms C commenced employment at the DHB in July 2005. At that time she participated in an orientation programme, which included sessions on the DHB's medication policies and incident reporting. All RNs are required to complete an online competence assessment within four weeks of commencing employment with the DHB. The DHB advised HDC that all nurses are required to undertake ongoing professional development as part of their maintenance of competency to apply for an annual practising certificate. The DHB confirmed that RN Ms C attended a wide range of education modules, which included the Cardiac course, which "should have updated her in most of the clinical specialties".
116. The DHB policy regarding medical medication testing for RNs states that "the employee must complete the identified sections of the computerised medication administration test within 4 weeks of employment (or 6 weeks for new graduate nurses)". In July/August 2005 RN Ms C completed the standard medical medication test, achieving 100% in one part and 83% in the other.
117. On 28 January 2011, RN Ms C advised HDC that she is not currently working and does not intend to return to nursing practice. She stated:

"I realise that I was wrong not to report the medication error immediately and while not trying to excuse my behaviour in not doing so I do want to explain that the shift had been very busy and stressful. This was partly due to [Mr A's] need for almost constant supervision, the fact that the 'special' had not turned up and the need to wear isolation gear every time you saw him. There were lots of other things happening in the ward, which caused me to become distracted, and time passed very quickly. I was also very aware that I had a new graduate having to cope with 3 angiogram patients and that I was not able to check that she was okay other than a quick query while rushing past.

I would like to express my condolences and to apologise to [Mr A's] family for anything that I may have done to contribute to his death. My intention had been only to make his time on our ward as easy as possible for him."

Responses to provisional opinion

118. The responses to the provisional opinion have been incorporated into the “information gathered” section where relevant. The following further responses were received.

Mr B

119. Mr B met with HDC staff to discuss the provisional opinion. Mr B was offered RN Ms C’s written apology. Mr B stated that he was not prepared to accept the apology at that time, but would consider reading it after the conclusion of the Commissioner’s investigation.

RN Ms C

120. RN Ms C responded to the provisional opinion, stating:

“[The Director of Nursing] has said that I was a Level 3 senior nurse with a lot of experience working on [the ward]. In fact I was a Level 2 nurse (as recognised by the expert) and while I had worked on [the ward] for some time it had primarily been a medical ward and had only recently changed to include cardiac patients.

I acknowledge that I did have education including a cardiac module however I missed the lessons given on the ward due to being on night shift. I had learnt at the study days that all cardiac patients are routinely given beta blockers as they are admitted but I was not aware that they were then removed if the patient went into heart block. That made it seem more logical to me that they were charted for [Mr A]. The only mention of heart blocks from the study days that I can recall was to try to read them on ECGs.

[The Director of Nursing] stated that there was a dedicated nurse educator for each division and that they undertake a learning needs analysis and plan learning opportunities for nurses in their assigned division. Several times I asked the nurse educator if the ward lessons that I had missed could be redone but she never had the time and the budget apparently didn’t allow her to redo them. In saying this I do acknowledge that I had a responsibility for my own learning.”

The DHB

121. The DHB stated that the DHB accepts the findings in the provisional report, and has reviewed its systems to address the issues identified by the DHB’s own investigation of this case, and will learn further lessons from the HDC report. The DHB advised:

“Pyxis overrides

A number of measures have been implemented to further utilise the safety functionality provided by Pyxis Medstations. A Quality Improvement programme has been initiated to provide a continuous quality improvement cycle to lower the incidence of overrides occurring. This project is being rolled out in the medical wards at [one] Hospital in June/July 2012 and at [another] Hospital in the last quarter of 2012. Two additional pharmacy staff have been employed to enable more prescriptions to be profiled in Pyxis MedStation that will reduce the need for overrides.

As part of the Quality Improvement project, the number of withdrawals using the Pyxis Override as a percentage of total withdrawal transactions will be reported, by ward, on a monthly basis. This information for the last year is available as the baseline measurement and monthly feedback to staff will occur on a regular basis as each ward is rolled into the project beginning in July 2012.

Nurse training

I confirm that [the] DHB has a process in place to ensure that all nurses undergo training specific to their area of work and to assess the effectiveness of the training provided. We have a formal programme of learning for all nurses employed. This starts with orientation and familiarisation and then a minimum of 20 hours of learning annually, which includes mandatory learning and speciality practice learning.

In relation to medication practice, all nurses receive targeted learning during the orientation period and must have completed the competence assessment process within four weeks. There are regular updates for nurses on expected practice, including a monthly medication safety promotion undertaken in conjunction with pharmacists. Annually, in the speciality learning modules there is a specific focus on medications for the speciality.

Evidence is available to show that each nurse receives appropriate learning annually. This database is maintained at service level and is overseen centrally by the Director of Nursing and Midwifery.”

Relevant standards

122. Nursing Council of New Zealand’s Code of Conduct for Nurses and Midwives

“PRINCIPLE ONE

The nurse or midwife complies with legislated requirements.

Criteria

- 1.4 practises within the legislation which impacts on the practice of nursing and midwifery and the delivery of health and disability services. ...

PRINCIPLE TWO

The nurse or midwife acts ethically and maintains standards of practice

Criteria

The nurse or midwife:

...

- 2.8 observes rights and responsibilities in the prescription, possession, use, supply, storage and administration of controlled drugs, medicines and equipment

- 2.9 accurately maintains required records related to nursing or midwifery practice.
...

PRINCIPLE FOUR

The nurse or midwife justifies public trust and confidence.

Criteria

...

- 4.6 takes care that a professional act or any omission does not have an adverse effect on the safety or wellbeing of patients/clients; ...
- 4.9 acts in ways which contribute to the good standing of the nursing and midwifery professions.”

Nursing Council of New Zealand (2007) Competencies for Registered Nurse Scope of Practice.

“Competency 1.1 Accepts responsibility for ensuring that his/her nursing practice and conduct meet the standards of the professional, ethical and relevant legislated requirements. ...

Indicator Demonstrates knowledge of, and accesses, policies and procedural guidelines that have implications for practice.”

Opinion: Breach — RN Ms C

123. On Saturday evening, Mr A was transferred to a medical ward from the Coronary Care Unit (CCU), where he had been for 24 hours after being admitted to hospital on Saturday with a myocardial infarction. Mr A had also been diagnosed with acute leukaemia, and during his admission to CCU he was delirious and agitated, and required sedation and close monitoring.
124. Mr A’s prognosis was poor, but the medical teams felt that transferring him to the medical ward’s lower stimulus environment would have a beneficial effect on his delirium and agitation. Mr A was prescribed IV midazolam for control of agitation, and oral zopiclone for sedation. Mr A was being nursed in reverse isolation because of his neutropenia, which required nursing staff and visitors to wear gowns and masks before entering his room.
125. On Monday afternoon, RN Ms C was working the 3pm to 11pm shift with three other RNs and a health care assistant (HCA). Mr A remained agitated and restless, so RN Ms C asked the HCA, Ms I, to stay in Mr A’s room. The planned additional staff member to “special” Mr A did not arrive. RN Ms C was frequently called away from her other patients and duties to assist Ms I to manage Mr A.

Drug error

126. At about 5pm, when RN Ms C was in the Pyxis room preparing to give one of the other patients in the ward, Mrs X, her pre-meal diabetic medication, RN Ms C was called to assist with Mr A, who was restless. RN Ms C decided to give Mr A the sedation he had been prescribed to calm him. She returned to the Pyxis room with Mr A's medication sheet.
127. RN Ms C decided to give Mr A his "dinner" medications as well. She picked up the file that was on top of the fridge in the room and, believing the file to be Mr A's, she logged on to Mr A's profile in the Pyxis for a list of his medications. She withdrew lorazepam, paracetamol, and tranexamic acid, all of which were prescribed for Mr A.
128. She then turned over the medication sheet on the file, found a record of simvastatin, co-trimoxazole, sotalol and metformin having been prescribed, and mistakenly thought that these medications had been prescribed for Mr A. She did not check that the sheet related to Mr A.
129. As the medication profile for Mr A on the Pyxis screen did not coincide with the medications recorded in the file she was looking at, RN Ms C used the Pyxis Override function to access the simvastatin, co-trimoxazole and sotalol, which were listed in the file she had open. She noted that the diabetic drug metformin was also listed, but decided not to give this medication to Mr A because he had refused to eat any dinner.
130. Independent nursing expert Claire O'Sullivan advised that a registered nurse should assess the patient before giving medication and, if concerned, should "query with the medical team ... whether this medication was appropriate for this patient given the patient's history". RN Ms C appropriately recognised that metformin (which should be taken during or after eating) should not be given to a patient who had not eaten. However, she should then have discussed this decision with the prescriber. As this medication was in fact for another patient, discussing whether it should have been withheld may have highlighted the fact that the medication was not prescribed for Mr A.
131. RN Ms C gave Mr A the medication she had removed from the Pyxis MedStation, and, while she was in his room, flushed his intravenous luer with saline, as the unit of red cells had finished. RN Ms C then returned to the Pyxis room.
132. As she prepared to give medications to her other patients, RN Ms C realised that two patient files were missing. RN Ms C stated that another nurse in the room located the files on top of the fridge and gave them to her. RN Ms C opened Mrs X's file, found Mr A's file inside, and realised that she had mistakenly given Mr A Mrs X's medication. She checked the medications and found that Mrs X's drugs were mainly cardiac medication. RN Ms C said that she was "slightly reassured" by this, as Mr A was also a cardiac patient.
133. RN Ms C said that she told RN Mr H that she had given Mr A another patient's medication. She said that he laughed, which made her feel humiliated. RN Mr H has no recollection of this conversation.

134. RN Ms C stated that she did not report the medication error to the on-call doctor or the duty manager because she felt “stupid and embarrassed” and, because the drugs were cardiac medication, “nothing leapt out at me as being extreme danger”.
135. Ms O’Sullivan stated that the literature shows that beta blockers, such as sotalol, are commonly prescribed for post-myocardial infarction patients. However, Mr A had bradycardia (a slow heart rate) and second and third degree atrioventricular (AV) heart block.²⁶ In this situation, beta blockers would be contraindicated because of the negative effects on heart rate and conduction. Ms O’Sullivan said that if a beta blocker was prescribed, she would expect that before considering giving the medication, the registered nurse would initially check the patient’s pulse rate and blood pressure and, if they were of concern, query with the medical team whether the medication was appropriate.
136. Sotalol is classed as a beta blocker and a Class III anti-arrhythmic agent. MIMS states that the contraindications to sotalol are bradycardia (a heart rate of less than 50 beats per minute) and second and third degree AV block. There is evidence that RN Ms C had assessed Mr A’s vital signs at 5pm before administering the medication, but it appears that she was unable to establish an accurate recording of his blood pressure and his pulse rate. The Observation and NEWS record shows that Mr A was bradycardic, as his pulse rate had not exceeded 60bpm that day and, at 4.30pm, had been 42bpm. Therefore, even if a beta blocker had been prescribed for Mr A (which it had not) it should not have been given.
137. RN Ms C stated that she was new to the cardiac ward and did not know the normal treatment for the different types of heart block and, after the incident, she sought advice from the cardiac nurse educator about the effects of sotalol. I do not accept that RN Ms C was so inexperienced that she would not be expected to know that a beta-blocker was contraindicated in patients with bradycardia, such as Mr A.
138. The Nursing Council of New Zealand requires that each RN undertake a minimum of 60 hours of professional development over three years, relevant to the needs of the patients in the specialty the RN is working in.
139. RN Ms C had both practical and theoretical knowledge about treating cardiac patients. She had worked for a considerable time on the ward, which was a general medical/palliative care ward until the focus shifted to cardiac care shortly before this incident occurred. General medicine wards have a mix of patients with non-surgical conditions, which include cardiac problems. In 2010 the focus in the ward shifted to mainly cardiac care and, in 2010, RN Ms C attended 48+ hours of professional development, which included the Cardiac module. The medical medication test, which RN Ms C had passed, expects that the nurse should know the special precautions and vital sign monitoring required before administering specific medications. I am advised that RN Ms C would have been trained about the effects of beta blockers.

²⁶ A third-degree atrioventricular (AV) block is complete heart block.

140. The DHB's Pharmacy Department trains DHB staff in the use of the Pyxis MedStations, and the DHB's Pyxis MedStation Medication Management policy provides guidance to staff in the use of the Pyxis system. Prescribed medications are entered into the individual patient's profile in the Pyxis system by the pharmacy staff when prescription lists indicating new or changed medications are faxed to the pharmacy.
141. The Pyxis system allows for situations when medications that have not been entered into the patient's profile are needed, such as the requirement for urgent treatment or when prescriptions are issued outside pharmacy opening hours. In this situation the nurse who needs to administer a medication can activate the Override function. The policy advises that when this occurs, the chart is to be faxed to the pharmacy so that the medicine can be profiled before the next time it is required. The DHB audits all Pyxis overrides to ensure the pharmacy has been notified. These events occurred after hours, but RN Ms C did not fax the chart to the pharmacy.
142. To obtain the medications for Mr A, which were not listed in his medication profile, RN Ms C was required to override the Pyxis system several times. Ms O'Sullivan commented that this action "in my opinion would signal more careful consideration of the medications she was about to administer". At 5.07pm, in order to obtain the simvastatin, co-trimoxazole and sotalol, which were not prescribed for Mr A, RN Ms C overrode the Pyxis system.
143. In response to the provisional opinion, RN Ms C noted that Ms O'Sullivan stated that she overrode the Pyxis three times without questioning. RN Ms C said: "Only one of the three overrides related to the wrong medications." She stated that the other two were to obtain Mr A's oxazepam and the nebuliser, both of which had not been updated on the chart. RN Ms C submitted that she was not required to override the Pyxis system three times to obtain the other patient's medications at 5.07pm on Monday, which she gave to Mr A. However, this does not, in my view, mitigate the seriousness of the series of errors she made that resulted in Mr A receiving the wrong medication.
144. Ms O'Sullivan advised that RN Ms C did not take adequate steps to ensure that Mr A received the correct medication. She stated that, when giving medication, nurses are required to ensure that they have the right patient, medication, dose, time and method of administration. Nurses should check the patient's name and NHI number on the medication chart, and then recheck this information against the patient's identity bracelet prior to giving the medication. RN Ms C did not follow these procedures. Had she done so she would have realised that she had the wrong medication for Mr A. In response to my provisional opinion, RN Ms C stated that she did check Mr A's bracelet, but did not "tick off the meds" on the chart, because it was outside the room, as Mr A was in reverse isolation. However, she did not explain why she did not take steps to ensure she gave the right medication to the right patient, and then complete the chart immediately after she left the room.
145. RN Ms C stated that she had missed a number of education sessions owing to her being on night duty, and that the nurse educator would not redo the sessions she missed. Ms O'Sullivan stated that in these circumstances she would expect a

registered nurse to ask, go online, or look up the medications in the MIMS drug catalogue to check whether there is a risk to the patient in administering this or any other medication. RN Ms C said that she did consult MIMS after she realised her error. Despite the drug catalogue noting that sotalol is contraindicated for patients with bradycardia and second and third degree heart block, she decided that there were no obvious concerns and did not seek medical assistance for Mr A.

146. RN Ms C did not take adequate steps to ensure that Mr A received the right medication, and in fact overrode the system three times, one of which was to obtain the three medications that had been prescribed for another patient. Ms O’Sullivan stated that the failure to ensure Mr A received the right medication was a “moderate (if not severe) deviation from an appropriate standard of care”.
147. Ms O’Sullivan stated that RN Ms C deviated to a severe degree from the standard of care when she did not act immediately once she realised her mistake. By not reporting her mistake as soon as she realised that she had given Mr A the wrong medication, RN Ms C did nothing to mitigate the potential danger to him. Ms O’Sullivan advised that this contravenes the Domain 1 competence for registered nurses²⁷ in relation to accepting responsibility for his or her practice and complying with professional, legal and ethical standards. Ms O’Sullivan stated that when RN Ms C realised that she had given Mr A incorrect medication she should have:
- checked Mr A’s observations and condition;
 - immediately notified the medical team so that Mr A could be reviewed and any treatment options be considered;
 - notified her nursing manager or appropriate nursing superior; and
 - completed an Incident form as per the DHB Management Policy.

Management of deteriorating condition

148. RN Ms C failed to appreciate the significance of the deterioration in Mr A’s condition throughout her shift, both before and after giving the medication, which was evidenced by his rapid respiratory rate, cold peripheries, and non-specific blood pressure reading. In response to my provisional opinion, she attributes this to her wrongly believing that Mr A was for palliative care only, and said that, as a result of this error, she reduced the frequency of Mr A’s observations once the red cell infusion was finished.
149. RN Ms C recalls that “sometime” after giving Mr A his medication, she answered an urgent call from the toilet adjacent to Mr A’s room.²⁸ The HCA was with Mr A when he became breathless in the toilet and was unable to walk back to his room. RN Ms C said that she assisted the HCA to get Mr A back to his room. She gave him oxygen to assist him with his breathing.

²⁷ There are four Domains of competence for the registered nurse scope of practice. See Ms O’Sullivan’s expert advice — Appendix A.

²⁸ The notes made at 7pm do not state when this occurred. HCA Ms I does not recall Mr A.

150. RN Ms C found Mr A's blood pressure difficult to assess. He was breathless and wheezy, restless, and his hands were cold and sweaty, which are signs of poor perfusion arising from poor cardiac output and a deteriorating condition. However, RN Ms C did not request a medical review. Ms O'Sullivan stated that RN Ms C does not appear to have used any critical thinking processes, or to have adequate knowledge about the side effects of the drugs she was giving, or the assessment skills regarding Mr A's condition and complications, which would be expected of a registered nurse.
151. There is discrepancy in the recollections of Mr B and RN Ms C regarding Mr A's deterioration and RN Ms C's actions during the following period. RN Ms C recorded contemporaneously that when she checked on Mr A at 7.10pm, she found him lying on the bed cyanosed and not breathing, and she advised Mr B that Mr A had died, and asked a doctor who was on the ward to certify Mr A's death. She later advised HDC that she had called the duty doctor to come to the ward to certify Mr A's death. Mr B states that at about 6.40pm he noted a change in Mr A's condition and, when he saw RN Ms C at the nurses' station, he called for assistance. There was no independent witness to these events. However, at 7.30pm, the on-call doctor certified Mr A's death at 7.10pm. It is apparent that Mr A's condition deteriorated significantly at around 7pm, and that he died shortly afterwards.

Follow-up

152. At 7pm and 7.30pm RN Ms C documented in the clinical notes the care provided to Mr A on Monday afternoon, but she did not record that he had been given incorrect medication, or advise the oncoming staff of this before going off duty at 11pm.
153. The next day, RN Ms C left a message on the DHB Clinical Nurse Educator Ms K's phone asking her to call back. When RN Ms K telephoned RN Ms C at about 4pm, RN Ms C asked her about the difference between first, second and third degree heart block, and the effect that medications such as lorazepam, OxyNorm and midazolam might have on a patient with heart block. RN Ms K asked RN Ms C if her questions related to Mr A, who had died on the ward the previous night. RN Ms C said that they did, but did not take the opportunity to advise RN Ms K of the medication error.
154. It was not until 10am on Wednesday that RN Ms C arrived at RN Ms K's office and told her that at 5pm on Monday, she had administered incorrect medication to Mr A, and that the medication she gave was another patient's co-trimoxazole and sotalolol.

Summary

155. There were a number of opportunities to prevent this medication error. The usual checks that should be undertaken before administering medication would have alerted RN Ms C to her error before the medication was administered. In addition, it is concerning that RN Ms C overrode the Pyxis system three times to obtain medication for Mr A without realising that she needed to check the medication chart against the medications logged on his Pyxis profile, and the patient ID label on the prescription sheet in the file.
156. RN Ms C believed that metformin had been prescribed for Mr A, and appropriately decided to withhold the medication because Mr A had not eaten. As previously noted,

- RN Ms C should then have discussed this decision with the prescriber. Had she sought advice, she would have been alerted to her error. In relation to the sotalol, not only was this the wrong drug given to the wrong patient, but RN Ms C should have known that this drug should not have been given to a person with Mr A's condition — with bradycardia of around 42bpm.
157. In addition, RN Ms C failed to report the error once she was aware of it. She said that she convinced herself that because the medications she had given Mr A in error were cardiac, “nothing leapt out at [her] as being extreme danger”. She did not complete an incident form and did nothing to mitigate the potential danger to Mr A. This was a severe departure from expected standards.
 158. RN Ms C failed to recognise the significance of Mr A's deteriorating condition, despite finding that his blood pressure was difficult to read. He was breathless and wheezy, his respiratory rate was 24–28, he was restless and he had sweaty hands. Despite these signs of impaired cardiac output, RN Ms C did not seek medical review of Mr A.
 159. As the senior nurse on the ward at that time, RN Ms C had a role in modelling proper ethical standards and behaviours to junior staff. That RN Ms C felt “stupid and embarrassed” by her error, would seem a poor excuse for failing to report this incident. Failing to report the error, as RN Ms C herself said, was “stupid ... thus making an even bigger blunder than the original mistake”. I do not accept that RN Ms C's workload on this shift was excessive, and her workload does not excuse her actions.
 160. When RN Ms C did report her error it was two days later, by which time Mr A's body was back home and his family was preparing for his funeral. Not only did this delay compromise the Coronial inquiry, but it caused significant distress to the family when the Police arrived to retrieve Mr A's body for post mortem.
 161. In my opinion, by administering incorrect medication, failing to discuss with a prescriber that she had withheld medication, failing to immediately report the medication error and seek a medical review, and failing to recognise the significance of Mr A's deteriorating condition, RN Ms C did not provide care to Mr A with reasonable care and skill and, therefore, her conduct was a breach of Right 4(1) of the Code.

Opinion: No Breach — The DHB

Direct or vicarious liability

162. The DHB had an obligation to provide Mr A with appropriate care. As RN Ms C's employer at the time of these events, the DHB is vicariously liable for her breaches of the Code unless it can show that it took reasonable steps to prevent those breaches from occurring.

Pyxis policies and training

163. The DHB introduced Pyxis MedStation to its clinical areas in 2001. The Pyxis system is designed to preserve the safety and security of the dispensing and administration of medication to patients within the DHB's facilities. The DHB provides staff with a Pyxis MedStation medication management policy, which provides guidance for staff using the system. The policy states that when removing medicines from the Pyxis MedStation, staff are required to check and identify the medication removed against the patient's medication chart and the medication name and strength on the MedStation screen.
164. The DHB provides staff with a medication administration test booklet, which specifies that every time the inpatient medication chart is changed, it must be faxed to the pharmacy, including the STAT (for immediate administration) and PRN (as required) sections. In the pharmacy, all prescriptions are checked by the clinical pharmacist to ensure they are safe to administer. The prescribing sheets are then "profiled" by the pharmacist so that the medications are available for administration from the Pyxis MedStation without the need to use the Override facility.
165. There are safety systems built into the Pyxis system, for example, the "Override" and "Too Close" functions. The "Override" function allows staff to remove medication that has been prescribed, but not yet entered into the patient's Pyxis profile. However, staff are instructed to fax all medication changes to the pharmacy department as soon as practicable, so that the medication can be profiled for the next time it is required. The "Too Close" function enables staff to set intervals for safe administration to prevent a patient being overdosed. However, the DHB is aware of the evidence in the literature of "alert fatigue" and, as a result, has been cautious in enabling warnings in the system, instead looking for alternative measures such as education, to minimise errors.
166. Independent nursing expert Claire O'Sullivan commented that the "ease" with which the Pyxis MedStation System can be overridden increases the risk of medication error, especially during a busy shift and after hours when the pharmacy checking mechanism is not available. Ms O'Sullivan opined, however, that the DHB appears to have met the standards in the provision of training for nurses in the use of the Pyxis MedStation. I note the DHB's comment that excessive warnings can be ineffective, and that the DHB has attempted to balance the need to alert staff to potential errors with the risk that overly frequent warnings may be ineffective. However, this case demonstrates the need to reassess the use of system warnings and alarms.
167. The DHB provides training for its staff in the use of Pyxis MedStation. However, the DHB acknowledged that some nursing staff may not have been provided with adequate training in the Pyxis system because of their shift patterns. I agree that educational support in the workplace is a very important component of keeping patients safe, so enabling nurses to get to education sessions should be a priority. Since this incident there have been educational sessions highlighting the problems associated with Pyxis, in particular the "Override" function. I note that the DHB has also instigated additional checking and education programmes for nursing staff to reinforce safety and best practice for medication management.

Medication policy

168. Although the DHB had medication policies in place, they were not followed in this case. The DHB's Medication Management and Administration Policy states that all staff must comply with safe practice at every step of the process. Staff administering medications are expected to ensure that the right patient receives the right medication in the right dose at the right time by the right method of administration. This requires them to check the patient's chart and the patient's NHI number and identification wristband before administration. The DHB's policy states that staff administering medication must know what they are doing, have current knowledge, and think critically about every step of their practice.

Incident policy

169. The DHB has an incident management policy, which defines "incident" as an event, regardless of outcome, that could or did result in harm, and clearly states that all health professionals are responsible for and will be held accountable for their own practice. The policy instructs staff that they are to report any near miss or incident as soon as it occurs, or before the end of the shift, using the Board's RiskPro system. Adverse or sentinel events must be reported immediately to the duty manager for immediate response. The patient and/or family should be informed of the incident after consultation with the clinical director or the person in charge at the time of the incident. Ms O'Sullivan advised that the DHB appears to have met the standards in providing policies for the guidance of staff in medication administration and incident reporting.

RN Ms C's training

170. RN Ms C started working at the DHB as a registered nurse in July 2005. She participated in an orientation programme in the DHB policies and procedures in July 2005, which included medication procedures and incident reporting.
171. The DHB has a formal programme for learning for all the nurses it employs. This includes orientation and familiarisation, and a minimum of 20 hours of learning annually, which includes mandatory and specialty practice learning. All RNs are required to undertake at least 60 hours of professional development over three years as part of their maintenance of competency to apply for an annual practising certificate. In relation to medication practice, all nurses receive targeted learning during the orientation period, and must have completed a competence assessment process within four weeks of starting employment. There are regular updates for nurses on expected practice, including a monthly medication safety promotion.
172. RN Ms C undertook 48+ hours of professional development in 2010, which included a Cardiac module. She had worked for a considerable time on the ward, and should have been conversant with the policies and procedures particular to the ward and common to the hospital. RN Ms C did not comply with the DHB's medication and incident policies.
173. In my view, RN Ms C should have been aware of her responsibilities and obligations. Her actions/omissions did not comply with the DHB policy and were not in accordance with accepted best practice.

Conclusions

174. As soon as the medication error was brought to the attention of the staff responsible at the hospital, Mr A's family was advised, the appropriate authorities were notified, and an investigation was commenced. When the investigation identified issues that needed to be improved, corrective actions were taken.
175. I am satisfied that the DHB provided its staff with adequate training in the use of medication management and the use of the Pyxis system, and a clear expectation of acceptable staff behaviour and professional responsibilities, and responded promptly and appropriately when advised of this complaint. In my opinion, the DHB did not breach the Code.
176. I note that, as a result of this case, the DHB has provided additional training for staff in medication management, and has put measures in place to more closely monitor nurse medication management practice. However, I consider that the DHB needs to be cognisant of its ongoing responsibility to ensure that all nurses comply with current medication management practice.
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Recommendations

177. The following recommendations were proposed in the provisional opinion. All have now been complied with.
- RN Ms C apologised in writing to Mr B for her breaches of the Code.
 - The DHB:
 - provided evidence that a process is in place for the ongoing audit of the use of the override function of Pyxis; and
 - provided evidence that a process is in place to ensure that all nurses undergo training specific to their area of work, and to assess the effectiveness of the training provided.
-

Follow-up actions

- RN Ms C will be referred to the Director of Proceedings in accordance with section 45(2)(f) of the Health and Disability Commissioner Act 1994 for the purpose of deciding whether any proceedings should be taken.
 - A copy of this report will be sent to the Coroner.
 - A copy of this report with details identifying the parties removed, except the name of the expert who advised on this case, will be sent to the Nursing Council of New Zealand, who will be advised of RN Ms C's name.
 - A copy of this report with details identifying the parties removed, except the name of the expert who advised on this case, will be sent to ACC.
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- A copy of this report with details identifying the parties removed, except the name of the expert who advised on this case, will be sent to HQSC for consideration as part of the medication safety work.
- A copy of this report with details identifying the parties removed, except the name of the expert who advised on this case, will be placed on the Health and Disability Commissioner website, www.hdc.org.nz, for educational purposes.

Appendix A: Independent nursing advice to Commissioner

The following expert advice was obtained from registered nurse Claire O'Sullivan.

“Purpose: To provide independent expert advice about whether registered nurse [Ms C] and [the] District Health Board (the DHB) provided an appropriate standard of care to [Mr A].

Re: Complaint: The appropriateness of the care registered nurse [Ms C] provided to [Mr A] on [Monday].

Case Background:

After suffering severe chest pain a 60 year old man [Mr A] was admitted acutely to [hospital] on [Saturday] and diagnosed with a Non ST elevation myocardial infarction (NSTEMI). The diagnosis was made according to diagnostic criteria based on evidence based best practice guidelines which included electrocardiograph (ECG), the patient's clinical picture, and cardiac markers (American College of Cardiology/American Heart Association, 2008; National Heart Foundation of Australia/Cardiac Society of New Zealand and Australia, 2006).

He was also found to be severely anaemic (haemoglobin of 71gms/l) and have thrombocytopenia (low platelet count meaning risk of bleeding). Further tests disclosed previously undiagnosed acute myeloid leukaemia (AML). It was documented by medical specialists that treatment choices for either condition were difficult due to the risk of causing harmful side effects and adding further risk to a seriously ill person.

[Mr A] was initially nursed in the Coronary Care Unit but progressively deteriorated developing delirium, which according to the notes was likely due to his serious underlying conditions (NSTEMI and AML). During this time [Mr A] was regularly reviewed by medical teams including cardiology, haematology, surgical, intensive care and psychiatry. The patient was documented in the clinical notes as being difficult to manage due to the confusion, agitation and aggression related to his delirium. This made nursing him and administering treatments difficult and is documented in the clinical notes. As his condition deteriorated due to the serious nature of his illness, a decision was made to treat [Mr A] palliatively due to his poor prognosis. He was moved to a side room in the ward on [Sunday] so he could be nursed in protective reverse barrier isolation as he had neutropenia (reduced protective white blood cells), meaning high risk of infection.

According to the clinical documents, on [Monday evening] (between 5.07pm and 5.13pm) [Ms C] went to give [Mr A] his medications using the Pyxis medication system. When she could not retrieve some of the medications which were on the medication sheets (sotalol 80mg, simvastatin 40mg, co-trimoxazole 480mg), she overrode the system to gain access to the medications, which she then gave to [Mr A]. These medications were in fact not prescribed for [Mr A] but were prescribed for another patient. [Ms C] realised her mistake at 5.26pm when she went to give medication to another patient [Mrs X].

Meanwhile at around 7pm [Mr A] became short of breath and cyanotic. [Mr A's] partner [Mr B] who was present called [Ms C] who found [Mr A] to be unresponsive. The medical team was called and [Mr A] was pronounced dead at 7.30pm.

The next day [Ms C] contacted the nurse educator to ask about the effects of beta blockers. The following day [Ms C] went to the nurse educator and told her what had happened, and the mistake she had made.

Qualifications:

I registered as a General and Obstetric nurse at Christchurch Hospital in 1977. My background is mainly in cardiology working in the Coronary Care Unit both full and part-time and then being employed fulltime as a Clinical Nurse Specialist in Cardiology for 7 years. Following this I completed further education including a Master of Arts (MA), and I was registered by the Nursing Council of New Zealand (NCNZ) as a Nurse Practitioner in Adult Cardiac Care with prescribing rights in 2007. Since then I have been employed in this role at MidCentral Health.

My research thesis to complete my MA was about the attitudes and knowledge of doctors and nurses towards Cardiopulmonary Resuscitation (CPR) which looked at the impact of knowledge of survival predictors and outcomes as well as the influence of attitude towards resuscitation issues such as "Not for Resuscitation Orders".

Registered Nurses:

The Nurses Act (1977) sets out conditions for the registration or enrolment of nurses on the Nursing Council of New Zealand's register and who hold a current practising certificate. Each nurse is accountable for her/his practice and conduct (Nursing Council of New Zealand, 1995 p.1).

Registered Nurses, along with other health professionals practice under the Health Practitioners Assurance Act (HPCA), 2003. The HPCA Act is about public safety (Ministry of Health, 2011). While the Ministry of Health has certain functions under this Act, the primary responsibility for registered nurses falls to the registration body which is the Nursing Council of New Zealand.

Registered Nurse Scope of Practice (Nurses Council of New Zealand, 2007, p.4)

Registered nurses utilise nursing knowledge and complex nursing judgment to assess health needs and provide care, and to advise and support people to manage their health. They practice independently and in collaboration with other health professionals, perform general nursing functions and delegate to and direct enrolled nurses, healthcare assistants and others. They provide comprehensive assessments to develop, implement, and evaluate an integrated plan of health care, and provide interventions that require substantial scientific and professional knowledge, skills and clinical decision making. This occurs in a range of settings in partnership with individuals, families, whanau and communities. Registered nurses may practice in a variety of clinical contexts depending on their educational preparation and practice experience. Registered nurses may also use this expertise to manage, teach, evaluate and research nursing practice. Registered nurses are accountable for ensuring all health services they provide are consistent with their education and assessed

competence, meet legislative requirements and are supported by appropriate standards. There will be conditions placed in the scope of practice of some registered nurses according to their qualifications or experience limiting them to a specific area of practice.

Under the Health Practitioners Competency Act (HPCA) of 2003, every nurse has a scope of practice. The registered nurse scope of practice describes the specific area of practice he or she works in under the nurses Act 1977.

There are four domains of competence for the registered nurse scope of practice. Evidence of safety to practice as a registered nurse (RN) is demonstrated when the applicant meets the competencies within the domains of:

1. Professional responsibility

This domain contains competencies that relate to **professional, legal and ethical responsibilities** and cultural safety. These include **being able to demonstrate knowledge and judgment and being accountable for own actions and decisions, while promoting an environment that maximises client safety**, independence, quality of life and health.

2. Management of nursing care

This domain contains **competencies related to client assessment and managing client care, which is responsive to the client/clients needs, and which is supported by nursing knowledge and evidence based research.**

3. Interpersonal relationships

This domain contains competencies related to interpersonal and therapeutic communication with clients, other nursing staff and inter-professional communication and documentation.

4. Inter-professional health care & quality improvement

This domain contains competencies to demonstrate that, as a member of the healthcare team, the nurse evaluates the effectiveness of care and promotes a nursing perspective within the inter-professional activities of the team.

[Ms C] was assessed according to her Performance Development Review Portfolio (PDRP) as a Level 2 registered nurse. Level 2 nurses (National Nursing Organisations, updated 2005) are deemed competent in that they:

- Develop partnerships with clients that implement Te Tiriti o Waitangi in a manner which the client determines is culturally safe
- Effectively apply knowledge and skills to practice
- Has consolidated nursing knowledge in their practice setting
- Has developed a holistic overview of the client
- Is confident in familiar situations
- Is able to manage and prioritise assigned client care/workload

- Demonstrates increasing efficiency and effectiveness in practice
- Is able to anticipate a likely outcome for the client with predictable health needs
- Is able to identify unpredictable situations, act appropriately and make appropriate referrals.

According to documentation [Ms C] had been working at [the DHB] from July 2005 as an RN. Since her employment she had been working 0.6 FTE in a medical ward. An online competency assessment was required within 4 weeks of starting at the hospital for medication administration.

Inservice education was offered at the hospital although [Ms C] had had difficulty attending recently due to night duty. She would have been required to have at least 60 hours of learning over 3 years to meet the Nursing Council's annual practicing certificate requirements. Her portfolio had been assessed as competent at Level 2 and there were no known previous practice issues.

Questions:

1. Did [Ms C] take adequate steps to ensure that [Mr A] was provided with the correct medication?

[Ms C] did not, in my opinion, take adequate steps to ensure [Mr A] received the correct medications.

- When giving patients medications nurses are taught to ensure 'right patient, right medication, right dose, at the right time by the right method'. This means checking the patient's name and NHI number on the medication chart that the medications are prescribed on, and that it corresponds with the patient's ID bracelet prior to giving the medication to ensure the right patient gets the correct medication.
- It was not stated that this occurred and due to the inadvertent attachment of another patient's chart to the back of [Mr A's], if this had occurred the mistake may have been prevented. All individual medication pages should have the patient's name and NHI number on them in order to reduce mistakes such as this, so had checking of each page occurred it is likely that the mistake would have been picked up that it was the wrong medication chart.
- The [Pyxis] MedStation Medication Management Procedure ([the] District Health Board, [number]), 2009 states: 'The complete medication chart must be faxed to pharmacy whenever a user needs to use the override function to remove a medicine'. There was no mention of this being done (this could possibly be because it is after hours and no pharmacist would be available except for urgent on-call). However, to give these medications [Ms C] was required to override the system several times which in my opinion would signal more careful consideration of the medications she was about to administer. I must acknowledge I am not familiar with the [Pyxis] medication dispensing system as I have not used it and my comments are based on the information in the documentation that I have been sent.

- d. Although beta blockers are commonly prescribed post MI (Tang, Wong, Wilkins, Herbison, Williams, Kay, Restieaux, 2005) [Mr A] had had documented bradycardia and 2nd/3rd degree AV heart block, a contraindication due to the negative effects on heart rate and conduction (chronotropic and dronotropic effects) (MIMs Drug Catalogue, 2011). If a betablocker was prescribed I would expect a registered nurse to initially check the patient's pulse rate and blood pressure prior to considering giving the medication, and to query with the medical team (or on call doctor after-hours) whether this medication was appropriate for this patient given the patients history.
- e. In her statement [Ms C] states that during the afternoon [Mr A's] vital recordings were stable, however his blood pressure was difficult to hear and the electronic blood pressure machine was unable to measure it at all. She also states he was breathless and wheezy (respiratory rate 24–28), restless and had cold sweaty hands, all of which are likely to be a sign of poor perfusion resulting from poor cardiac output and condition deterioration. She mentions medical staff being on the ward and she discussed an indwelling catheter but at no time mentions asking for review of the patient or discusses treatment.
- f. [Ms C] also mentions that she withheld the Metformin (a diabetic medication) from [Mr A] as he was not eating. As an RN who does not have prescribing rights [Ms C] is not authorised to make unilateral decisions regarding withholding medications within her scope of practice and should have discussed this decision with a prescriber. As this medication was in fact for another patient discussing whether it should have been withheld may have highlighted that in fact it was not prescribed for [Mr A].
- g. [Ms C] does not appear to use any critical thinking processes or have adequate knowledge or assessment skills regarding [Mr A's] condition and complications including knowledge of the side effects of the medications she was giving, which would be expected of a registered nurse. [Ms C] mentions in her statement that she was new to the cardiac ward and had missed several education sessions due to night duty. If unsure I would expect a registered nurse to ask, go online or look up the medication in the MIMs drug catalogue which should be available in the clinical areas, to check whether there is any risk to the patient in administering this or any other medication.
- h. In fact [Ms C] later consulted the MIMs drug catalogue after realising her mistake and decided that there were no obvious concerns in administration of an incorrect medication because it was cardiac, yet Mims (2011, p. 48) states that contraindications to sotalol include sinus bradycardia (HR <45–50), 2nd, 3rd degree heart block).

2. Were there any systemic factors impacting on [Ms C's] ability to ensure [Mr A] was administered the correct medication?

Yes there were systemic factors which may have impacted on [Ms C's] ability to deliver care.

- a. [Ms C] was under pressure trying to manage her workload due to a very busy ward. She mentions in her statement having a new graduate and unwell staff member, and the amount of time required to look after [Mr A] who was suffering from delirium causing confusion, aggression and agitation.

- b. [Mr A] had previously had one-on-one supervision and clearly continued to require this. Although [Ms C] states in handover the nurse said ‘she had ordered another person to special him’, this had still not occurred by the time [Ms C] administered the incorrect medications at between 5.07pm and 5.13pm. Even though [Ms C] asked the health care assistant to spend time with [Mr A] she had other duties to perform concurrently.
- c. Research indicates that medication errors are common (McBride-Henry & Fourer, 2006 cited in [the DHB] Nursing Grand Round Education Session by [Director of Nursing & Mr J] 2010) and a systematic review found errors were related to distractions such as workload and lack of knowledge about medications (Hicks, 2004; Tissot et al, 2003; Wakefield et al, 1998; Segatore et al, 1994 cited in [Director of Nursing & Mr J], 2010).
- d. The ease of being able to override the Pyxis medication system to access drugs, and the lack of availability of the pharmacy staff to check the newly prescribed medication sheets when faxed to Pharmacy means a reduction in the safety mechanisms put in place to reduce medical errors, however RN’s are accountable for their practice in administering medications.

3. What should [Ms C] have done when she discovered that she had administered the incorrect medication to [Mr A]?

- a. Check patient’s observations/condition
- b. Immediately notify the medical team so the patient could be reviewed and any treatment options considered
- c. Notify her nursing manager or appropriate nursing superior (as per policy).

[Ms C] deviated to a severe degree from an appropriate standard of care for [Mr A] in that once she realised her mistake she did not immediately act on that knowledge. This contravenes the domains of competence Domain 1, professional responsibility (in particular 1.1 ‘accepts responsibility for ensuring that his/her nursing practice and conduct meet the standards of the professional, ethical and relevant legislated requirements’ and 1.4 ‘Promotes an environment that enables client safety, independence, quality of life and health’), and Domain 2: Management of Nursing care (in particularly 2.1 ‘Administers interventions, treatments and medications within legislation, codes of practice; and according to authorised prescription, established policy and guidelines’). Guidelines in this case included [the] DHB Medicine and Administration Policy 2009 ([number]) and [the] DHB Incident Management Policy ([number]).

[Ms C] also stated she considered that because the medications she gave were cardiac medications that she was reassured. She also mentioned that she did consult the MIMs Drug Catalogue and that ‘*nothing leapt out at me as being extreme danger*’. She did not appear to have any knowledge of the medications and their side effects and assumed that one cardiac drug would be the same as another.

Sotalol is classed as a beta blocker and Class III anti-arrhythmic agent. However although different beta blockers may all be of the same class, they can act in slightly

different ways and do not necessarily have the same effect. For example some betablockers are cardioselective (or more cardiac specific). In saying that they are of the same class of drugs (betablockers), it is like saying for example, that all cats are the same because they are cats, whereas in reality lions, tigers and jaguars are all classed as cats but are not the same animal. Beta blockers however have negative effects on heart rate and conduction. MIMs (on PDA, 2011) clearly states contraindications to sotalol being ‘bradycardia (40–50 beats per minute), and 2nd, 3rd degree AV block’ which [Mr A] is documented as having had.

4. Is there anything else [Ms C] should have done in the circumstances?

1. [Ms C] did nothing to mitigate the potential danger to the patient by not reporting her mistake as soon as she realised she had given the incorrect medication to [Mr A], and even though she did report the mistake it was not until 2 days after the death of [Mr A].
2. She did not follow the policy for medication administration and did not write an incident form as per [the] DHB Incident Management Policy ([number]).
3. In view of [Mr A’s] deteriorating condition with (the patient’s BP difficult to hear, rapid respiratory rate as well as cold peripheries), in my opinion medical review would have been appropriate.
4. As the most senior nurse [Ms C] was the duty co-ordinator while looking after the sickest patient (as well as 5 others), who had been previously given one-on-one supervision. It is also of note that her team consisted of one nurse who was pregnant and unwell, and a new graduate indicating limited support for [Ms C].
5. In my opinion [Ms C] should have contacted her nursing manager and asked for help. [Mr A] clearly required continued one-on-one supervision and even though [Ms C] was told someone was coming, by contacting the duty nursing manager she could have expedited the process. It would have also highlighted any unsafe staffing issues and shared the burden of responsibility by making her nursing manager aware of what was happening.

[The] DHB

5. Were there adequate systems in place at [the] Hospital [at this time] relating to medication administration?

1. DHB policies were in place and were clearly not followed.

[The] District Health Board Medication Management and Administration Policy, 2009 (Classification [number], p.3) states that ‘all staff understanding medicine management must comply with safe practice at every step of the process:

- Must know what they are doing and have current knowledge
- Must think critically about every step of their practice
- Must follow the accepted practice in calculation, prescribing, dispensing, checking, informing the patient/client and documentation.

The right medicine must be prescribed, dispensed, and administered in the right dose to the right patient/client via the right route at the right time.’

The policy also states ‘Where errors, omissions or near misses occur, these events must be discussed immediately with the health professional coordinating the unit/shift and the medical staff on duty to review the patient’.

All efforts must be made to minimise the impact [of] the error on the patient.

The patient/client and/or whanau should be informed that an error has occurred and what is being done to keep them safe.

Any omission, errors or near misses must be reported using the online incident reporting system.

The policy also clearly states that ‘All health professionals are responsible and held accountable for their own practice i.e. what they do and how they do it according to best practice’.

2. The ease with which the [Pyxis] Medication System can be over-ridden does increase the risk of medication error especially during a busy shift, and particularly after hours when the Pharmacy checking mechanism is not available.

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Additional advice

Ms O’Sullivan was asked to clarify her advice in regard to the degree RN Ms C departed from the accepted standard in relation to the medication error and advise whether she considered that the DHB met the standards in its provision of training and guidance to staff re medication management and incident reporting.

Ms O’Sullivan advised:

“In my opinion [Ms C] did not take adequate steps to ensure [Mr A] got the right medication, and in fact overrode the system put in place three times without questioning.

In my opinion this would therefore have to be moderate (if not severe) deviation from an appropriate standard of care. However, it should be taken into account that there were factors that influenced what appears to be a genuine mistake with no intent. These factors include the stress [Ms C] was working under due to how busy the ward was, staffing issues (one was pregnant and unwell and a new graduate requiring support), the responsibility of being shift co-ordinator as well as the demands of an unwell patient who required a special.

[The] DHB appears to have met the standards of provision in its training (although I believe training for nurses was an online [quiz] which I assume [Ms C] completed), and guidance with a very clear medication administration policy and incident reporting policy. However, the [Pyxis] dispensing system is easily overridden and the safety mechanisms of pharmacist review are only in place during working hours. Since the incident there have been educational sessions highlighting the problems and risk which is important.

It was also mentioned that [Ms C] was unable to get to educational updates due to night duty. Ongoing delivery of educational support in the workplace is a very important component of keeping patient’s safe so enabling nurses to get to education sessions where possible should be a priority.”